

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

I. The Invention

The present invention provides a method of operating an automated tool, and an associated apparatus, which includes positioning a wireless sensor such as a microelectromechanical system device having at least one sensor in close proximity to the automated tool, energizing the wireless sensor by energy transmitted in space to the sensor, monitoring one or more conditions of the automated tool and, if a monitored condition departs from a desired threshold value, emitting signals containing sensor information in space to a processor. The processor processes the sensor information and, in the event it determines that the automated tool has departed from desired conditions of operation, issues a responsive signal, such as an alarm signal, a signal to automatically shut down the tool, or a signal to deliver data. The automated system may, for example, be a manufacturing apparatus working on the fabrication of a workpiece, such as a progressive stamping die operating on a metal sheet workpiece.

II. Status of the Claims

Claims 1-37 are pending in this application. In the Office Action mailed on December 23, 2004, claims 20, 30 and 31 were rejected under 35 U.S.C. § 112 and claims 1-37 were rejected under 35 U.S.C. § 103. Claims 1, 10, 20, 25, 30, and 31 have been amended, and claim 21 has been canceled.

III. Rejections Under 35 U.S.C. § 112

The Examiner rejected claims 20, 30 and 31 under 35 U.S.C. § 112. Applicants have amended claims 20, 30 and 31 in a manner that addresses the Examiner's rejections. Accordingly, Applicants respectfully request that the rejections be withdrawn.

IV. Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 1-10, 18-19, 21, 23, 24 and 32-37 under 35 U.S.C. § 103(a) as being unpatentable over Sakatani et al., United States Patent Application Publication No. 2003/0030565, in view of Mickle et al., United States Patent No. 6,615,074, claims 11-13, 15, 16, 17, 20, 26, 27, 29 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Sakatani et al., in view of Mickle et al. and further in view of Hamel, United States Patent Application Publication No. 2004/0078662, and claims 14, 22, 28 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Sakatani et al., in view of Mickle et al. and further in view of Fox, United States Patent No. 6,101,857.

Claim 1, as amended, recites a method of monitoring operation of an automated tool comprising “monitoring at least one condition of said automated tool by said sensor” and “emitting signals containing sensor information in space to a microprocessor only if said at least one condition departs from a desired threshold value.” The underlined limitation was previously recited in dependent claim 21. Similarly, claim 25, as amended, recites an apparatus for monitoring operation of an automated tool comprising “at least one wireless sensor for monitoring a condition of said automated tool and emitting sensor signals through space only if a monitored condition departs from a desired threshold value.”

As noted above, the Examiner rejected claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Sakatani et al. in view of Mickle et al. Specifically, the Examiner stated that paragraph [0196] of Sakatani et al. teaches transmitting sensor signals only if a monitored condition departs from a desired threshold value. Applicants respectfully disagree with the Examiner’s reading of paragraph [0196]. Paragraph [0196] of Sakatani et al. states:

In addition, as shown in FIG. 5, the processing unit 39 has an amplifier 48, a comparator 49, a signal processing unit 50 and an ASK (Amplitude Shift Keying) modulator 51. The amplifier 48 forms a signal of vibration detected by the vibration ... sensor 44 into an absolute value. The comparator 49 compares the signal of the vibration sensor 44 formed into an absolute value by the amplifier 48 and a signal output from the temperature sensor 45 with threshold values set in advance respectively. Thus, the comparator 49 outputs a result thereof. The signal processing unit 50 adds

identification information peculiar to the vibration (acceleration) sensor 44 or the temperature sensor 45 outputting detection data to the detection data output from the comparator 49. In addition, of the detection data, detection data judged to exceed the threshold value is added with an alarm signal, and output together. The ASK modulator 51 modulates the signal output from the signal processing unit 50 so as to digitize (binarize) the signal. ... The communication unit 40 converts the signal digitized by the ASK modulator 51 into a radio wave, and transmits the radio wave as a signal R.

Based upon the above, Applicants submit that what paragraph [0196] actually teaches is that the comparator 49 compares sensor signals to threshold values and outputs a result of the comparison. The signal processing unit 50 then adds identification information identifying the particular sensor in question to the “detection data” output by the comparator 49. In cases where the comparator 49 determines that a threshold value has been exceeded, the signal processing unit 50 also adds an alarm signal to the detection data. All of the detection data, not just that which exceeds a threshold (and thus has an additional alarm associated with it), is then transmitted wirelessly. Thus, contrary to the Examiner’s statements in the Office Action, paragraph [0196] does not teach that only detection data which exceeds a threshold value is wirelessly transmitted. Applicants further submit that none of the cited references teaches such a limitation. Accordingly, because claims 1 and 25, as amended, each recite that sensor signals are wirelessly transmitted only if a monitored condition departs from a desired threshold value, Applicants respectfully submit that they are allowable over the cited references. In addition, because claims 2-20, 22-24 and 26-37 depend, either directly or indirectly, from either claim 1 or claim 25, Applicants respectfully submit that they are likewise allowable over the cited references for the same reason.

CONCLUSION

Based on the foregoing remarks, Applicant respectfully submits that claims 1-20 and 22-37 are in condition for allowance. A three month extension of time for extending the period for responding the Office Action is requested. No fee is believed to be due in

connection with this Amendment. Any unforeseen fees may be charged to Deposit Account No. 02-2556. Duplicate copies of this page and the signature page are enclosed.

If a telephone conference would facilitate prosecution of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

Respectfully submitted,

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